
STRUCTURAL EVOLUTION IN NUCLEI: THE IMPORTANCE OF A SYSTEMATIC PERSPECTIVE

R. F. Casten

WNSL, Yale University, New Haven, CT

One of the signature features of Raman’s work was the love and exploitation of nuclear systematics as a tool to discern interesting structural phenomena and to understand better the evolution of structure with nucleon number. Such a tool, properly used, can be extremely powerful, especially when data are correlated with a physically meaningful variable that yields simple and compact trajectories. It can reveal trends that reflect basic elements of nucleonic interactions, it can reveal nuclei with special symmetries, or anomalous nuclei, and it can point to possibly incorrect measurements. This talk will focus on several uses of correlations of nuclear data, illustrating the above ideas. Particular aspects to be discussed are proton-neutron interactions, quadrupole collectivity, the search for phase transitional behavior and critical point nuclei, and a new mapping of collective nuclear structure across large parts of the nuclear chart, leading to a discovery of an “arc of regularity” characterizing certain nuclei lying adjacent to others that exhibit chaotic spectra.

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